HANDOUT #6

WATERSHED AND TRIBUTARY COMPONENT OF THE ***** ALTERNATIVE FOR THE TRINITY RIVER MAINSTEM FISHERY RESTORATION SUPPLEMENTAL EIS/EIR

(Draft 11/25/03)

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Background and Status:

The Final Environmental Impact Study/Report for The Trinity River Mainstem Fishery Restoration EIS/EIR was released in October 2000 by the U.S. Bureau of Reclamation (USBR), U.S. Fish and Wildlife Service (USFWS), and the Hoopa Valley Tribe, as lead agencies under NEPA, and Trinity County, as the lead agency under CEQA. The Record of Decision (ROD) for that document was signed by former Interior Secretary Bruce Babbitt and former Hoopa Valley Tribal Chairman Duane Sherman signed on December 19, 2000. These two documents were the result of nearly 20 years of studies of the Trinity River and its fisheries.

The ROD mandated that the Department's agencies implement the Preferred Alternative and the "reasonable and prudent" measures described in the Biological Opinions by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS). The Preferred Alternative identified in the ROD incorporates the recommendations developed in the Trinity River Flow Evaluation Report and evaluated under the Flow Evaluation Alternative, as well as additional watershed protection efforts identified in the Mechanical Restoration Alternative of the EIS/EIR.

Immediately following the Interior Secretary's ROD, The Westlands Water District, San Luis and Delta-Mendota Water Authority, the Sacramento Municipal Utilities District and the Northern California Power Agency filed suit against the federal government in the Eastern Federal District Court in Fresno, on the grounds that the FEIS/EIR did not adequately evaluate the potential impacts of the Preferred Alternative on water and power users in the Central Valley and that an inadequate range of alternatives was fully evaluated.

In several rulings between March 2001 and March 2003, Federal District Court Judge Oliver Wanger concluded that the EIS was inadequate in several areas, notably in its stated purpose, range of alternatives, analysis of power supply, use of public participation, and disclosure of ESA reasonable and prudent measures. In December 2002, he issued a ruling against the implementation of higher flow releases, ruling that a Supplemental EIS be completed in order to address the deficiencies identified with the original EIS. He also ordered that the NMFS and USFWS Biological Opinion Reasonable and Prudent Measures must be described and evaluated in that draft SEIS. He also limited fishery flow releases to 369,000 AF in critically dry years and 453,000 AF in dry, normal, wet and extremely wet years. All non-flow related activities under the ROD were directed to proceed including mechanical rehabilitation, floodplain

infrastructure improvement, gravel placement, watershed restoration, the establishment of the Trinity Management Council and an Adaptive Environmental Management Program.

This project is directly linked to Judge Wanger's conclusion that a reasonable Integrated Management alternative, which would utilize non-flow measures (such as watershed and tributary restoration) and seek to minimize impacts on all other CVP interests, while achieving the statutory goal of Trinity River fishery and basin restoration, was not given fair analysis or consideration in the EIS process. Judge Wanger alleged that the lead agencies and the EIS management team intentionally narrowed the scope of the alternatives to "ecological" and "flow-driven" objectives. Judge Wanger said the lead agencies avoided addressing, and foreclosed public participation, on any alternative that sought to utilize non-flow measures to meet the Congressionally-mandated Trinity River Fishery Restoration Goals of Public Law 98-541 in order to minimize impacts to listed species in the Central Valley and other CVP-wide adverse impacts. He concluded that as a result, the document did not adequately or honestly consider whether an integrated management alternative, based on stream restoration science that integrates multiple approaches to fishery restoration, would minimize the overall effect on CVP water and power users and listed species in the Central Valley and the Delta.

Purpose

The development of a Watershed and Tributary Restoration component will better integrate watershed restoration and "non-flow measures" into the overall approach to restoration of the Trinity River as identified in Judge Oliver Wanger's December 9, 2002 Memorandum Decision and Order Re: Cross Motions for Summary Judgment. The Watershed and Tributary Restoration Component may be incorporated into the analysis of an "Integrated Management Alternative" which could be one of several of the alternatives identified in the SEIS/EIR.

The information collected through this effort was compiled in order to determine how watershed and tributary restoration could be further integrated into Trinity River Restoration. Data collection and analysis was conducted in order to help identify priorities within the basin, estimate the costs of increased watershed restoration efforts, determine how further watershed and tributary restoration may fit into the current framework of restoration to meet the fishery restoration goals of P.L. 98-541.

Methodology

In order to determine the role of watershed and tributary restoration in coordination with higher flow releases from Lewiston Dam, the Tributary/Watershed Alternative Analysis Team categorized restoration projects within the basin into 6 different restoration types including Upslope Watershed Restoration, Instream Habitat Improvement, Riparian Habitat Improvement, Fish Passage Improvement, Water Conservation: Improving Water Supply (Quantity/Quality), and Land Conservation. Restoration project types were then linked to the restoration objectives of the Trinity River Restoration Program.

The team compiled a database of restoration projects implemented between 1984, the year the Trinity River Basin Fish and Wildlife Act was signed, and 2000. Project

information was obtained from the Bureau of Land Management, Bureau of Reclamation, California Conservation Corps, California Department of Fish and Game, Trinity County, Department of Water Resources, Five Counties Salmonid Conservation Program, Hoopa Valley Tribe, North Coast Fisheries Restoration, Trinity Fisheries Improvement Association, Trinity River Consulting, USDA Forest Service, Lower Trinity Ranger District, Big Bar Ranger District, Hayfork Ranger District, Shasta Trinity Division, Weaverville Ranger District, Yolla Bolly Ranger District, Six Rivers National Forest, Willow Creek Community Services District, and the Yurok Tribe Watershed Restoration Department.

Information collected includes each project's implementing agency, watershed, location, land ownership, funding source, contractor, start and end dates, status of completion, average cost, restoration type, specific restoration activity, and cost. Appropriate project details were also collected when available such as cubic yards of sediment saved, number of stream crossings removed, miles of road decommissioned, miles of instream habitat improved, miles of upslope habitat improved, fish species affected, and materials used. The project team also identified projects currently planned in the basin by different agencies.

Watershed and Tributary Restoration:
According to the Trinity River TMDL, a complex restoration program has been implemented on the Trinity River since the late 1970's. There is little doubt, based on anecdotal descriptions of the river in that time period, that the restoration program and other related efforts (such as DFG's Fishery Restoration Grants Program) have had a beneficial effect on habitat in the river through a combination of watershed restoration, fish passage improvement, sediment detention, riparian improvements, water conservation, land acquisition, increased flows from Lewiston Dam, and mainstem habitat enhancement through pool dredging, side channel construction, and feather edge construction. Many of these actions were only implemented in the 1990's and the full benefits have not likely yet been seen. A total of 476 projects were compiled into the database under the six restoration types. Most work was completed in the Upper Middle Trinity and South Fork Trinity Watersheds as follows:

Upslope Restoration	164
Instream Habitat Improvement	179
Riparian Improvement	49
Fish Passage Improvement	69
Water Conservation	5
Land Conservation	1
Unknown	9

<u>Upslope Watershed Restoration</u>
Upslope restoration types include road restoration and hill-slope stabilization activities aimed at reducing the amount of sediment that may potentially deliver to a stream. Road restoration activities include road decommissioning and maintenance of existing roads.

Road maintenance activities consist of the replacement/installment of ditch-relief culverts and stream crossings, drainage ways, sediment traps, stabilizing steep road-cut banks, outsloping, removing berms, installing rolling dips, and resurfacing. Hill-slope stabilization activities include stabilizing slides, grade control, revegetation and/or mulching hill slopes (U.S Army Corp of Engineers, 2003). These restoration activities are categorized as Upslope restoration types based on a common goal of reducing the delivery of sediment into an aquatic ecosystem.

As stated in the ROD, the objective of sediment management is "to address the problems of excessive sediment input" (Department of the Interior, 2000). Activities within the upslope restoration type contribute to the sediment management objectives by balancing, through limitation, the amount of sediment entering the system from the Trinity Basin tributary watersheds.

The effect of upslope sediment reduction projects and the need for additional releases from Lewiston and Trinity reservoirs into the Trinity River is described on page 65 of the "Trinity River Total Maximum Daily Load for Sediment" (U.S. E.P.A, 2001) as follows:

"In order for the TMDL to be fully effective in protecting beneficial uses and attaining water quality standards, the ROD flows and restoration program must be implemented. ***The ROD flows are intended to achieve several attributes of a healthy alluvial river system that sediment allocations through the TMDL cannot achieve alone.*** *For example, the ROD flows include inter- and intraannual flow variations that mimic the natural snowmelt period. These peak flows are critical to support several river functions including the mobilization of channelbed particles, scour pools, create point bars and connect the mainstem to the floodplain. Such conditions are necessary to support habitat elements for spawning, rearing and migration of salmonids. The TMDL sediment allocations will be more effective in supporting beneficial uses if implemented in consort with the ROD flows.* ***Similarly, the ROD flows will be more effective in achieving the river health goals when the TMDL load allocations are implemented.*** *"* (Emphasis added)

No other data or information exists to contradict the above statement from USEPA's Trinity River TMDL. Thus, it cannot be determined if upslope sediment reduction projects will result in decreased demands for instream flow releases from Trinity River Division reservoirs. To the contrary, it appears that upslope sediment reduction and increased instream flows appear to complement each other, and one cannot be traded for the other.

The need for upslope restoration has been documented in watershed assessments and inventories throughout the basin. This type of work is identified as critical in restoring salmon and steelhead habitat as part of the ROD on the President's Forest Plan (Option 9: U.S. Department of Agriculture and U.S. Department of the Interior, 1994). BLM's Trinity River Watershed Analysis contains an average annual sediment yield estimate at Hoopa of 1,283 yd^3 per square mile (U.S. Bureau of Land Management, 1995). Extrapolating this to the entire basin (exclusive of the areas upstream of Lewiston Dam and federally designated roadless/wilderness areas), the 2,223-square-mile area in question would produce approximately 2.85 million yd^3 of sediment per year. Full-scale implementation of the watershed protection program identified in the Draft EIS/EIR

would result in an approximate reduction of 240,000-480,000 yd3/year, which is approximately 9-17 percent of the average annual sediment produced in the Trinity River Basin. The Draft EIS/EIR identified a cost of ?? per cubic yard, which is likely too low of a cost. Currently, the Department of Fish and Game recognizes $15 per cubic yard of sediment saved as a reasonable cost in implementing upslope sediment reduction projects. However, as projects increase in complexity and associated costs such as permitting are taken into account, costs typically range from $15 - $30 or more per cubic yard. At this range, implementation of the watershed component of the original EIS/EIR alone would amount to anywhere from $3.6 – $7.2 million to $7.2 - $14.4 million dollars.

In 1994, the Trinity River was listed under the Clean Water Act (CWA) Section 303(d) as water quality impaired due to sediment. Sediment levels were determined to be in excess of the Water Quality Standards (WQS) necessary to protect the beneficial uses of the basin – particularly the cold-water fishery.

Assessments of watershed conditions and sediment source inventories were completed for the South Fork Trinity River in 1998 and for the Main Stem in 2000. The Trinity TMDLs included analyses of the rivers by sub-watershed units, targeting sediment sources and effects to salmonids within each reach. Relevant portions of the TMDL assessments are summarized as follows:

1. **Upper Trinity Assessment Area (Upstream of Lewiston Dam):** Several tributaries to Trinity and Lewiston Reservoirs are currently exhibiting low watershed condition, geomorphic, and biotic integrity relative to their natural potential condition – specifically, portions of the upper Trinity River mainstem and East Fork and Eastside tributaries to the Trinity reservoir (De la Fuente et al. 2000). The upper Trinity mainstem and the East Fork each received values indicating an "at risk" condition.

   County roads in East Fork and Eastside tributaries are a major current and potential sediment source. Eastside Road and Trinity Dam Boulevard theoretically have a combined potential volume of 490,000 cubic yards or 46% of the total volume from all County roads (Five Counties DIRT Inventory). Actual potential delivery volume from these roads is estimated to be substantially less than the estimated volume in a 50+ year storm event.

2. **Upper Middle Reach (Lewiston Dam to North Fork Trinity River):** The Upper Middle Reach of the Trinity Watershed was identified as the highest priority in terms of sediment source reduction in the TMDL. The condition of aquatic habitat in the Upper Middle Reach was identified as being of particular importance in the mainstem TMDL for two reasons: (1) biologically, it is utilized more extensively for anadromous fish spawning and rearing than are other basins, and (2) the tributaries and mainstem of this basin have been subjected to a high level of habitat modification, due to the Central Valley Project (CVP) Trinity River Diversion, land management in the tributaries, and natural slope processes.

The TMDL identifies several flow and geomorphic effects that result in mainstem impairment. Each of these factors is associated with the operation of the CVP as well as with other upslope activities. Instream impairment factors within the upper half of the Middle Reach are:

A) **Reduced Coarse Sediment Supply From the Upper Basin:** Below the confluence with Rush Creek, the annual coarse sediment supply from tributaries has continued at rates equal to or slightly higher than before the CVP Trinity River Diversion, resulting in lower instream flows that reduce mainstem transport capacity (US FWS and HVT 1999). Inadequate bedload mobility results in a decrease in substrate complexity thereby reducing macroinvertebrate production and reducing the pool depths needed for adult fish cover and rest. GMA (2001b) identified a 12 foot increase in channel bed elevation at a cross-section just below the confluence of Indian Creek.

B) **Limited Sediment Mobilization Below Lewiston Dam:** The mainstem channel bed, since the completion of the CVP Trinity River Diversion, has not been adequately mobilized, increasing sediment accumulation at the deltas of tributaries and resulting in loss-of-habitat characteristics associated with alternate bar sequence. The gravels delivered by the mainstem tributaries below the dam have also not been effectively mobilized and dispersed due to inadequate flood flows.

C) **Reduced Main Stem Pool Depth:** After access to the upper basin was eliminated due to dam construction, spring chinook had to "summer-over" in any available deep pools below the dam until spawning began in fall. Fine sediment has reduced the mainstem pool depths, affecting the amount of deep pool habitat important for adult salmonids holding over in the summer. Since many of these pools were historically occupied by summer-run steelhead, chinook were forced to compete for pool habitat below the dam.

D) **Excessive Levels of Fine Sediment:** The reduction of dam controlled scouring flows in the mainstem has contributed to fine sediment infiltration into spawning gravels. This impact is greatest just below the confluence of Grass Valley Creek. Deposition of sediment on exposed cobble bars and lack of flushing flows has created "fossilized" berms or sediment accumulation around riparian vegetation. This contributes to loss of open, shallow, low-velocity gravel bar habitats for rearing salmonid fry.

Numerous studies have identified and evaluated decomposed granite sediment sources and delivery from Grass Valley Creek. This creek has been determined to be the largest source of decomposed granite sediment in the reach. De la Fuente et al. (2000) determined that Weaver and Rush Creeks are impaired based on an analysis of the stream and watershed condition indicators. Because of their water quality and channel conditions, Weaver and Rush Creeks were rated as functioning at risk and as having a high watershed hazard condition. The same assessment determined that Brown's Creek was in a moderate condition. In other words, physical and biological conditions suggest that aquatic and riparian systems are at risk of being unable to support dependent species and retain beneficial uses of water.

3. **Lower Middle Reach Assessment Area:** The lower middle reach assessment area generally consists of relatively steep gradient (i.e., high sediment transport) stream reaches and rugged terrain, much of which lies within the Trinity Wilderness area. Land management disturbance is minimized in much of the area due to the Wilderness designation.

   Canyon Creek, according to De la Fuente et al. (2000), is at risk with regard to several aquatic habitat indicators including water quality, stream vegetation, channel stability, and aquatic integrity. The presently unstable channel conditions in Canyon Creek largely result from intensive historic mining activity and other land use activities for several miles along the lower mainstem that are easily accessible via a primary road (pers. comm. Loren Everest). Conversely, other tributaries in the lower-middle area are relatively difficult to access and have not experienced the same level of disturbance.

4. **Lower Trinity Assessment Area:** The Lower Assessment Area includes the portions of the Trinity River below the confluence of the South Fork, except for streams within the Hoopa Reservation. There are a limited number of county roads within the assessment area. No inventories were done within the Hoopa Reservation.

The South Fork and Main Stem TMDLs included a series of watershed indicators that could be evaluated or measured to assess the progress of meeting the recovery goals established by each TMDL. Watershed indicators that directly relate to upslope restoration include stream crossings with diversion potential or significant failure potential; hydrologic connectivity; annual road inspection and correction; road location, surfacing, sidecast; activity in unstable areas; and disturbed areas.

Accelerated road decommissioning, road maintenance, and road rehabilitation has primarily been focused on public lands within Trinity National Forest watershed (South Fork and Upper Middle Trinity River), which contains approximately 3,450 miles of mostly unpaved roads. This area also includes a small portion of the Six Rivers National Forest in the lower South Fork and lower mainstem watersheds, as well as the private lands and county roads within the entire Trinity River watershed. The Trinity County RCD, in cooperation with the NRCS and USFS Hayfork Ranger District has targeted upslope activities in the South Fork Management Unit. NRCS and the Trinity County Resource Conservation District (TCRCD) have also implemented a major watershed restoration effort in the Grass Valley Creek Watershed. Between 1992 and 1996, the program treated 10,838 acres, including 858 sites inventoried by SCS (1992), decommissioned 45 miles of old roads, landings, and skid trails, improved 19 miles of permanent roads, installed sediment basins, and revegetated extensive areas using 562,000 trees, shrubs, and plugs (TCRCD, in preparation).

An inventory of Forest Service roads in the South Fork Management Unit has been completed by the Trinity County RCD. County road inventories have been completed in Trinity County through the Five Counties Salmonid Conservation Program (5C) DIRT Inventory. FCSCP, USFS and TCRCD have all prioritized their projects as far as road maintenance and road decommissioning. 5C has laid out an implementation schedule and has completed two projects within the basin to date. Two additional projects are underway and two more are slated for construction next year. Many road rehabilitation and maintenance activities were completed in the Weaverville Ranger District approximately 8-12 years ago. A Watershed Assessment for the Weaverville watershed (Rush Creek, Little Brown's Creek, Weaver Creek) is in the initial stages and the work identified under that assessment is expected to begin within the next 3-4 years. Road work is also planned for the Oregon Fire Area and is expected to also take place within the next five years. 5C will continue to implement projects at the rate of 2-3 per year on County Roads. Projects on private roads, which make up the remainder of the watershed, can be done through NRCS and other limited grant sources, however, landowner cooperation is a limiting factor and private roads projects are infrequently performed.

Upslope restoration is a high priority restoration type. Upslope restoration project limiting factors include available funding and staffing. Private lands upslope restoration projects are again limited by access, funding and landowner cooperation.

Instream Habitat Improvement

Instream habitat restoration types include activities such as mechanical alterations and coarse sediment augmentations. Restoration is aimed at improving fish habitat. Mechanical restoration includes the removal/improvement/installment of weirs (log, boulder, and/or cement), large woody debris, root wads, boulders, step-pool systems, channel excavation (i.e.: dredging) and other alterations that enhance diversity of instream refugia (Oregon watershed Enhancement Board,1999; U.S Army Corp of Engineers, 2003). Sediment augmentation introduces coarse sediment into the stream channel to create diverse habitats for spawning (Oregon watershed Enhancement Board,1999). These restoration activities are categorized as Instream Habitat Improvement restoration types based on a common goal of increasing in-channel fish habitat.

Section 2.1.B of the Trinity River Basin Fish and Wildlife Act of 1984 defines a management program that would "rehabilitate fish habitats in tributaries of such river below Lewiston Dam and the South Fork…" (United States Congress, 1984; P.L. 98-541). Also, the 1992 Central Valley Project Improvement Act (P.L. 102-575, Section 3406(b)(23) reiterates the need to meet the fishery restoration goals for the Trinity River basin (Department of the Interior, 2000).

Instream restoration projects have primarily been implemented in the South Fork Trinity River and Upper Middle Trinity River Watersheds. Instream habitat improvement projects are often necessary in the lower gradient stream systems, many of which have been simplified due to the cumulative effects of historic mining and different land use activities. Large woody debris and boulder placement can be beneficial at these

locations. However, the poor habitat conditions typically warranting instream habitat improvement projects are often a result of excessive sediment input. Upslope restoration within the watershed are often more appropriate than instream projects. Further, for many of the higher gradient tributaries within the Trinity River Basin that are fed by snowmelt, instream habitat improvement projects would be ineffective. **These projects will not be analyzed as high priority in the context of the Watershed and Tributary Restoration Component of the SEIS/EIR.**

Riparian Habitat Improvement

Riparian habitat restoration types include streambank stabilization, managing livestock by fencing off portions of the riparian habitat and/or creating a buffer zone between farmland and stream systems (Oregon Watershed Enhancement Board,1999).. Streambank stabilization, which is aimed at improving riparian habitat and water quality, includes using rip-rap, boulders, cement, vegetation and/or regrading bank slope (U.S Army Corp of Engineers, 2003). These restoration activities are categorized as Riparian Habitat Improvement based on the common goal of enhancing riparian habitat and water quality.

As stated in the Trinity River Basin Fish and Wildlife Management Act of 1984, the program is to "rehabilitate fish habitats in tributaries…" by means of restoration (United States Congress, 1984; P.L. 98-541). Riparian Habitat Improvement supports the "rehabilitation of fish habitat" through the enhancement of riparian habitat and improvement of water quality. Riparian habitat improvements within the tributaries are consistent with the fishery restoration goals and methods of the TRRP.

Stream buffer zone and riparian fencing projects have mainly been implemented by private landowners throughout the South Fork watershed with assistance from the Trinity County RCD and NRCS. Further riparian habitat improvement projects of this type are limited by landowner cooperation and available funding. Federal riparian lands are specifically managed for objectives identified under the Northwest Forest Plan, including Riparian Reserve Allocations. Stream bank stabilization projects are not a common need on a basin wide scale, however, they can be very beneficial in discrete locations. Unstable stream banks are often a result of excessive upstream sediment loads or poor adjacent land uses practices (e.g. cattle grazing or roads on steep/unstable streambanks). **As a result of these factors, upslope restoration activities will carry a high priority for SEIS/EIR analysis purposes.**

Fish Passage Improvement

Fish Passage Improvement restoration types include activities, such as, the removal and/or installment of natural and constructed fish passage structures. Restoration is aimed at improving the movement of fish migration to suitable spawning and rearing habitat within the Trinity River and its tributaries. Natural and constructed passages that may impede fish passage include culverts, dams, step-pool systems, large woody debris, and/or waterfalls (Oregon watershed Enhancement Board, 1999; U.S Army Corp of Engineers, 2003). The removal/installment of constructed and/or natural fish passages

activities are categorized under the Fish Passage Improvement restoration type because of the common goal of improving fish migration.

As stated in the Trinity River Basin Fish and Wildlife Management Act of 1984, the program is to "rehabilitate fish habitats in tributaries..." (United States Congress, 1984; P.L. 98-541). Permanent barriers to fish movement in the Trinity Basin have resulted in habitat fragmentation and a vast reduction of available habitat for spawning and rearing. Other effects of barriers may include increased levels of sedimentation, turbidity, and predation, in addition to alteration of stream flows, degradation of stream channels, depletion of riparian areas, modification of water temperature regimes, and loss of habitat diversity and complexity. Barriers can also impair sediment transport, thereby diminishing the replenishment of beneficial sediment (spawning gravel). The cumulative effects of large numbers of these structures within the watershed pose significant risk to the recovery and long-term viability of salmon and steelhead populations.

Fish Passage Improvement Projects have mainly been focused in the South Fork Trinity and Upper Middle Trinity River Watersheds. Many barriers within the basin have been identified, and are cited in the Coastal Conservancy's recently published report, "Inventory of Barriers to Fish Passage in California's Coastal Watershed". The Five Counties Salmonid Conservation Program (5C) has completed a County road inventory, identifying and prioritizing 58 barriers in Trinity County. 5C has implemented two of these projects within the basin and has two more slated for construction in 2004. The USFS Hayfork Ranger District currently has four projects planned for implementation, and the USFS Weaverville has identified priority projects within their district. In addition, the Trinity County RCD and NRCS continue to work with cooperative landowners to remove barriers to fish passage on private lands. The greatest limiting factors to implementation of these projects are the often extensive, sometimes controversial and lengthy permitting processes, lack of available funding and adequate staffing, landowner cooperation, and high costs associated with full implementation. Costs are in the range of $250,000 per project on public roads.

As an example of some of the potential problems fish passage problems, a project partly funded by the Trinity River Restoration Program for Trinity County to replace a fish barrier culvert with a bridge on a coho stream, Oregon Gulch, was halted by the Trinity County Board of Supervisors because of private landowner concerns about the regulatory implications of providing access to coho salmon, a species listed as threatened under the federal Endangered Species Act.

In the context of the Watershed and Tributary Restoration Component of the SEIS/EIR, fish passage improvement projects have a high priority.

<u>Water Conservation: Improving Water Supply (Quantity/Quality)</u>
Improving water supply restoration types include water right acquisition and water conservation activities. Restoration is aimed at improving water quantity and quality. Water acquisition includes buying instream water rights or senior water rights from private property owners (Oregon Watershed Enhancement Board,1999). Water

conservation includes efficient changes in irrigation methods and domestic water use (ditch lining, pipe replacement, drip system, and/or removal of water diversions) (U.S Army Corp of Engineers, 2003). Acquisition and water conservation activities are categorized under Water Conservation: Improving Water Supply (Quantity/Quality) because of the common goal of improving water quantity and quality.

One main element of the Implementation Program of the ROD is the Variable Annual Flow Regime, which is aimed at providing suitable water temperatures, volumes and velocities for fish habitats (Department of the Interior, 2000). Through water conservation, water quantity and quality in tributaries can be improved and managed to help provide the elements necessary to support and restore fisheries throughout the basin.. During periods of warm weather, salmonids are often found at or in refugia areas created by cold water flows from various tributaries into larger streams such as the mainstem Trinity River or lower Klamath River.

Most water conservation projects have been implemented by private landowners within the South Fork Trinity River Watershed through the Trinity County RCD and the NRCS. In several of the smaller watersheds, increased instream flows through water right acquisition and water conservation have helped to provide suitable water temperatures, volumes and velocities for fish habitats. In some cases, these projects have also eliminated fish passage barriers by elimination of instream diversion structures. However, most of the feasible, beneficial projects of this type have been completed. Further implementation is limited by landowner cooperation and funding. Because of concerns with water rights, these projects are not easy for some of the major landowners/diverters to accept. **In context of the analysis of a Watershed and Tributary Component of the SEIS/EIR, water conservation projects play a small role and are a medium priority**.

Land Conservation

Land conservation restoration types include the acquisition of the fee title or conservation easements of private property.

Public ownership and legal access to lands surrounding tributaries allows for management activities consistent with watershed and tributary restoration riparian reserve allocations and Wild and Scenic River Corridor Criteria. Further, the goal of the watershed restoration component of the Trinity River ROD Implementation Plan is "to address the problems of excessive sediment input from many of the tributaries of the Trinity River" (Department of the Interior, 2000). Land Conservation restoration types allows the implementing agencies to have the ability to manage sediment sources from private lands located in tributaries.

Land acquisition can provide opportunities for restoration. For example, in the late 1980s and early 1990s, the Trinity River Task Force had become convinced that commercial timber harvesting on highly erosive decomposed granite soils, such as those in Grass Valley Creek, was incompatible with the goals of the restoration program. As a result, some 17,000 acres overlying this erosive formation in the GVC watershed was purchased

in 1993 from Champion International. The Bureau of Land Management is now managing the land for purposes other than timber harvest. Since the land purchase, NRCS and the Trinity County Resource Conservation District (TCRCD) have implemented a major watershed restoration effort. The change in land use alone resulted in a significant reduction in discharge of decomposed granite into GVC and the Trinity River.

However, approximately 1.58 million acres of the watershed (83% of area) are already under Tribal, local, state or federal ownership/management. The Six Rivers and Shasta-Trinity National Forests, and the Bureau of Land Management account for the vast majority of public land management. Almost half of the public lands, 700,000 acres (37% of the watershed area), are within federally designated Wilderness areas or inventoried roadless areas. Additional public lands are within the Wild and Scenic River corridor and/or designated Late Seral Reserves with limited road management or development activities (can we get a number on this?). It is not anticipated that significant land or easement acquisitions would be incorporated into an overall restoration plan for the Trinity River, as remaining private lands are not expected to significantly come into public ownership. **As a result of these factors, land conservation programs will carry a low priority for SEIS/EIR analysis purposes.**

Recommendations

Due to limiting factors such as funding, landowner cooperation, limited staffing, and permitting, the current rate of restoration project implementation for many of the water conservation, land acquisition, instream improvement, and riparian improvement project types cannot be significantly accelerated under existing conditions. However, with available funding and prioritization, upslope restoration and fish passage improvement projects within the watersheds could be accelerated., The watershed and tributary restoration component of the SEIS/EIR analysis will identify planned restoration projects and include additional restoration activities in the watershed and tributaries of the Trinity River Basin. Projects should be prioritized and coordinated on a basin-wide scale regardless of the implementation agency.

Specific Projects:

List projects here (est costs, sediment savings, miles of stream opened up, improved, acres conserved, af conserved, etc.)

5 counties fish passage

Forest Service Fish Passage

Sediment control/watershed restoration: public/private

Water Conservation

Land Conservation